

REVISION OF THE GENUS PAROPSIS.

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PART V.

[Continuing the treatment of the species forming Group VI. (as characterised in P.L.S.N.S.W. 1896, p. 638) of the genus.]

SUBGROUP V.

The difficulties of the genus *Paropsis* culminate in the present subgroup, and I have been much tempted to omit it from this "Revision." On full consideration, however, it seems best to include it, even though I can deal with it only in a fragmentary and uncertain manner. As no systematic treatise on these insects has yet appeared, this attempt of mine may at any rate serve as a point of departure for future observers. The most formidable difficulty that these species present arises from the fact that they are for the most part, on the one hand of very fragile texture drying into extremely variable shapes according to their condition at the time of death and very liable to be affected in respect of their sculpture by long immersion in spirits, and on the other hand adorned when living with bright metallic colours which fade after death into a uniform brownish or testaceous tint. These peculiarities have in very few instances been mentioned by (or probably known to) describers,—so that there are very few descriptions extant which can be confidently identified with actual specimens.

For the determination of species I find it indispensable to know something of the colours and markings of the living insect, but fortunately this is not an impracticable requirement since immersion for 24 hours in benzine (or even in water) always revives the colours of a mature specimen sufficiently for the purpose.

The preparation of the following tabular statement of the characters of the species in this subgroup has given me more trouble than that of any other tabulation of Australian *Coleoptera* that I have ever drawn up, and even now, after careful study of thousands of specimens of this subgroup, I am very far from being satisfied with it. I have completely failed to discover any very conspicuous reliable structural characters on which to break up the species into easily recognisable aggregates, and have, after many attempts at a more satisfactory grouping, been obliged to adopt a colour distinction for characterising the main divisions. And here it will be well to remark that I have found it necessary to absolutely set aside from consideration all *immature* specimens, of which there are many in all collections of these *Paropsides*, and which may generally be known by their elytra or abdomen being shrunken in such fashion that the two sides are not symmetrical in form. Hence it follows that the characters cited in the following table will not serve for the identification of immature examples of *Paropsis*, for which I can recommend no other course than severely throwing them away.

Among the species of this subgroup when living (or when their colours have been revived as specified above) there are three types of colouring. First, there are a number of species,—for the most part of less fragile texture than the others,—which have little (or even no) metallic colouring. Usually these have a more or less faintly golden tone about the base of the elytra and on the disc of the prothorax, and but little more. Then come species having what I call *diffused* metallic colouring which takes two forms on the elytra, those organs being (their expanded margins which are never, or at any rate only rarely, metallic excepted) either of a beautiful uniform green golden coppery or rosy lustre or uniformly tessellated with a vast number of small square silvery or golden spots. When the whole disc of the elytra is metallic the colour is usually shaded in a most curious manner, the deepest shades lying along the lines of punctures and producing the remarkable effect of making the elytra appear to a casual glance deeply sulcate, although in reality there is no sulcation whatever. I take this to

be a very striking case of mimicry, though I am unable to offer any suggestion as to what is mimicked or what is the purpose of the mimicry. There remains to be mentioned a third type of marking, which consists in a sharply defined discal pattern of large brilliant green or golden spots and stripes which seem to be very little subject to variety. The species having this type of marking are among the most beautiful *Coleoptera* known to me, and it is almost impossible to believe when looking at one of these magnificent creatures alive that in a few hours all its glorious colours will disappear.

In tabulating I have separated the species having a sharply defined metallic pattern as forming a main division of the subgroup, but have not made separate main divisions of those presenting the other two types of colouring, as I find it difficult to draw a clear line founded on the possession of much or little diffused metallic colouring. It may be noted, however, that in general the species ending with *obovata*, Chp., in the tabulation, have little or no metallic colouring, and the remainder as far as *inconstans* (Chp.), Blackb., have metallic colouring diffused over the whole disc of the elytra either in the tessellated or pseudo-sulcate fashion.

The first main aggregate of subgroup v., then consists of species not having a sharply defined metallic elytral pattern, and among these it will be seen that in some the seriate punctures of the elytra do not run in single file and are very far from symmetrical, the succession of punctures being sinuous or zigzagged, or frequently interrupted by two or three punctures placed transversely, or even more placed in a cluster. These I have regarded as the first aggregate of species, but have been unable to find good structural characters suitable for tabulation to distinguish them *inter se*. The species (of the first main aggregate) having the elytral series symmetrical, or nearly so, are divisible into two sections by the presence or absence of lateral inequalities on the elytra. These consist of shallow transverse depressions by no means strongly marked, but quite discernible, and which more or less strongly interrupt the symmetry of the 10th elytral series.

It must be remembered, however, that this character is only reliable in mature specimens, immature examples often having their elytra so shrunk and distorted that it is impossible to determine whether they have or have not systematic inequalities. In such specimens, however, the inequalities are usually different on the two elytra.

The species with symmetrical elytral series and elytra devoid of lateral inequalities fall into two sections fairly reliably to be distinguished (immature specimens and those very long immersed in spirits excepted) by the sculpture of the elytra. In one of these sections the elytral series are invariably fine, close, and extremely symmetrical, with interstices usually quite flat and very fine striae if any; while in the other section the elytral sculpture is variable, the series in most of the species being considerably coarser and in very few species perfectly symmetrical throughout (some of the discal series being more or less zigzagged in places and the 10th series near the base being almost invariably much confused), the striae when present distinctly less fine and less scratch-like, the interstices in many examples decidedly convex. Each of these sections moreover has its own type of prothoracic sculpture varying somewhat in degree (owing probably to length of immersion in spirits, age of specimen when killed, &c.), but after a little practice easily recognisable. In the species of the former section the disc of the prothorax is (normally) finely and closely punctulate and not or scarcely asperate; while in the latter the disc is either very sparsely punctured or strongly rugulose.

So far it is not difficult to go with moderate confidence in dealing with these most perplexing insects, but when one comes to divide into species the specimens pertaining to each section, the task is almost hopeless. It is a difficult matter to find two specimens that can be confidently asserted (apart from the circumstances of capture) to be identical, and it frequently happens that two specimens which one knows to be conspecific dry into the appearance of belonging to two species. I am of opinion that the determination of the species is *impossible*, except by the means of some student with plenty of leisure time at his command

devoting himself to a study of their characters and habits in their larval and pupal stages. Under these circumstances I have had to content myself with breaking up the sections into a few aggregates which I feel confident are distinct (at least specifically) *inter se*, and applying a name to a typical example of each aggregate; though at the same time entertaining a strong suspicion that among the specimens to which I am applying the name, there are a good many more species in reality than one; so that in respect of many of the names tabulated below all I venture to assert is that specimens referable to it by their characters are distinct from the other species tabulated, and are either the species in question or one very close to it and not separable by any reliable character that I can find.

The number of names that I can ascertain to have been applied to species of this subgroup is 26. Of these there are two of which I am somewhat confident that I have not seen a specimen (viz., *albicans*, Chp., and *proxima*, Chp.), two that I can confidently assert to be synonyms (viz., *conferta*, Chp., = *lesca*, Germ., and *vulgaris*, Chp., = *obovata*, Chp.), three that I regard less confidently as synonyms (viz., *lesca*, Germ., = *amica*, Newm., *amena*, Clk., = *captiosa*, Clk., and *debilis*, Chp., = *purpureo-aurea*, Clk.), and two concerning which I hesitate to say more than that I have not been able to connect them with any of the specimens I have examined (viz., *citrina*, Chp., and *tenella*, Chp.). After the elimination of the above names, then, there remain 17 names which appear to me to represent valid species of this subgroup and which are known to me; and to them I add (below) 8 new species, bringing up the number to 25. To speak more particularly concerning the species mentioned doubtfully above, I may say that *amica* is altogether insufficiently described, but the description contains the word "pravis" applied to the seriate puncturation of the elytra, which word certainly seems to point to one of the first four species in the tabulation (below); in that case the colours attributed to *amica* suggest identity with *lesca*, Germ., rather than with any of the others. If this conjectural synonymy is correct, Germar's name must yield to Newman's, but

as the specimens before me are certainly *læsa* and only doubtfully *amica*, I retain Germar's name. *P. amœna*, Clk., and *purpureo-aurea*, Clk., will be found discussed (below) under the names *captiosa*, Clk., and *debilis*, Chp. *P. debilis* is a more recent name than *purpureo-aurea*, but I retain it on similar grounds to those on which I retain *læsa*, Germ. *P. citrina* is not unlikely to be a specimen of one of the forms that I have mentioned as local races of *hectica*, Boisd., but the description is not sufficient to justify any confident assertion of its identity. *P. tenella*, Chp., is, I suspect, a species having a metallic pattern when living, but if so it is not possible to form any idea of what that pattern is. The following is a tabulated statement showing the characters distinguishing the species of this subgroup:—

- A. Elytra not having a sharply defined metallic pattern.
- B. The elytral series for the most part unsymmetrical.
- C. Elytra without well defined discal markings.
- D. Under surface and legs more or less black.
- E. Prothorax not having defined black markings.
- F. Elytra quite deeply striate throughout..... .. *variicollis*, Chp.
- FF. Elytra not, or scarcely, striate. *Cloelia*, Stal.
- EE. Prothorax with defined black markings, or even almost wholly black... .. *agricola*, Chp.
- DD. Under side and legs testaceous.... *læsa*, Germ.
- CC. A black discal spot on each elytron.. *Minerva*, Blackb.
- BB. The elytral series for the most part symmetrical.
- C. Elytra with systematic lateral inequalities.
- D. Prothorax with sharply defined black markings..... .. *bimaculata*, Oliv.
- DD. Prothorax not having sharply defined black markings.

- E. The elytral series similar *inter se*
in respect of size of punctures... *irrisa*, Newm.
- EE. The elytral series near the suture
consist of punctures notably
finer than those of the other
series..... *obovata*, Chp.
- CC. Elytra even laterally.
- D. Elytra (at least of ♂) non-striate;
all the series fine, close and very
symmetrical; in 9th and 10th series
three punctures in a length equal
to the width of the adjacent inter-
stice.
- E. The series become black at a dis-
tance from their base about
equal to the length of the scu-
tellum..... *basalis*, Chp.
- EE. The series not coloured as in
basalis.
- F. Very nitid species.
- G. Suture blackish in its front
half; colour of elytra (when
alive) very brilliant golden *aurea*, Blackb.
- GG. Suture not blackish; colour
of elytra not golden *hectica*, Boisd.
- FF. Surface notably less nitid.
- G. Discal puncturation of pro-
thorax rugulose.
- H. The discal series of elytral
punctures confused in
places by equally large
interstitial punctures..... *Simsoni*, Blackb.
- HH. The discal series all quite
distinct from the inter-
stitial puncturation..... *raucicollis*, Blackb.
- GG. Discal puncturation of pro-
thorax non-rugulose.
- H. Prothorax evenly convex
from one lateral margin
to the other..... *pallida*, Oliv.
- HH. Discal part of prothorax
more convex than lateral *inconstans* (Chp.), Blackb.

- DD. Elytral series notably less fine and symmetrical; their punctures less closely placed; elytra in many species more or less striate.
- E. Sculpture of lateral part of elytra (as in *inconstans*, &c.) non-rugulose and comparatively fine, evenly distributed and close.
- F. Prothorax closely rugulose..... decolorata, Chp.
- FF. Prothorax non-rugulose and much less closely punctured captiosa, Clk.
- EE. Sculpture of lateral part of elytra coarser and less evenly distributed, usually rugulose.
- F. Series 9 and 10 almost confluent somewhat behind shoulder, and consisting of more or less quadrate punctures with narrow ridge-like interstices more or less continuous from series to series fastidiosa, Chp.
- FF. Series 9 and 10 continuously separated by a normal interstice, their structure not as in *fastidiosa*.
- G. Antennæ short, much thickened towards apex, black or blackish except near base flaveola, Chp. (?)
- GG. Antennæ less short and less thickened towards apex... rufescens, Chp. (?)
- AA. Elytra having a sharply defined metallic pattern (in living specimens).
- B. Head entirely black behind from slightly in front of level of hind margin of eyes; size large..... vittata, Blackb.
- BB. Head black only at extreme base or with at most a narrow median black projection; size smaller.
- C. The metallic markings include spots arranged in a circle common to the two elytra..... annularis, Blackb.
- CC. The post-median metallic markings take the form of a wide oblique fascia on each elytron gloriosa, Blackb.

- CCC. The post-median metallic markings run longitudinally near the suture.
- D. These longitudinal marks are two narrowly connected spots on each elytron nobilitata, Er.
- DD. These longitudinal marks are a continuous sinous band on each elytron..... debilis, Chp.

P. VARIICOLLIS, Chp.

Of this species I have examples from the Chapuis collection which bear a printed label "type," and agree well with the description. It is of less fragile texture than most of its allies. Its colour is yellowish-brown, with the base of the head, the underside, legs and apical part of the antennæ mostly black. The scutellum is more or less outlined with black, and the seriate and lateral punctures of the elytra are usually blackish. The form is obovate and rather strongly convex. The prothorax is rugulose and coarsely and closely punctulate. The elytra are exceptionally strongly and regularly striate, the striæ near the suture being as well defined quite to their base as the dorsal ones. The sides of the elytra are shallowly and vaguely but distinctly impressed a little behind the shoulder. The punctures in the striæ are rather large, closely packed and strongly crenulate and are decidedly non-symmetrical, many of the punctures being out of line with the adjacent ones and two or three being placed in a transverse row here and there. The confused lateral punctures are about the same size as those of the series and are rather closely placed, the interstices between them being rugulose. Owing to the blackish colouring of the punctures being confined to the *bottom* of each puncture, the punctures from a certain point of view appear round, non-crenulate and much smaller than from another point of view (this is of course not the case in specimens not having their punctures black). The interstices between the striæ are more or less convex and are rather closely and very distinctly punctulate. The prothorax is something less than three

times as wide as long. The general surface is not very nitid. The antennæ are filiform, joints 5-10 very little dilated towards the apex. I have not found much variety in the colouring of this species except in the seriate punctures; it is to be noted, however, that the basal black colouring of the head is not visible unless the head is considerably extruded. The cloudy fuscous blotches on the prothorax are in some examples scarcely traceable. There is not much difference between the sexes apart from the characters common to the genus. The 4th joint of the antennæ is quite noticeably (but not much) shorter than the 3rd joint.

P. CLOELIA, Stål.

This species is really very close to *P. variicollis*, Chp., varieties of it differing very little from *variicollis* even in colour, except in the black at the base of the head being absent, or at least much further back, and the upper surface being of a *livid* testaceous tone (not of the yellowish or reddish tint that appears to be invariable in *variicollis*). Typical examples are testaceous on the upper surface except the elytra which are piceous or black with the basal, lateral and apical margins more or less conspicuously testaceous, the undersurface and legs more or less black, the antennæ testaceous becoming piceous or black beyond the middle. Apart from colour, the head (including the antennæ), prothorax and scutellum do not differ much from those of *variicollis*; but the elytra are scarcely striate, their seriate punctures notably finer and non-crenulate, and their interstices flat and more feebly punctulate. I possess an example of this species from the Chapuis collection ticketed '*Paropsis Cloelia*,' and some others which I took in the Alpine district of Victoria. Its measurements are: long. 4, lat. $3\frac{1}{2}$ lines. Living specimens show some obscure golden colouring chiefly on the disc of the prothorax and around the scutellum.

P. AGRICOLA, Chp.

This name was unfortunately given to an extreme form of a species whose ordinary form does not appear to have been described at all. I possess an example of the ordinary form from

the Chapuis collection ticketed '*bimaculata*,' from which I suppose that Dr. Chapuis regarded the ordinary form as being *P. bimaculata*, Oliv.; but he was certainly mistaken in that case, as the ticketed specimen does not agree with Olivier's description, and I have before me an undoubtedly distinct species which agrees with that description perfectly. No doubt Chapuis had not seen the true *bimaculata*, and thought that the specimen he ticketed '*bimaculata*' was a variety of it (which, indeed, I should have thought quite possible myself if I had not seen the species mentioned below as *bimaculata*, Oliv.). My example of the form described by Chapuis was taken in Tasmania (the locality cited by the author) in company with numerous examples of the ordinary form.

P. agricola is closely allied to *Cloelia*, Stål, from which (excluding colour) it differs principally by its considerably less convex form and somewhat shorter and stouter antennæ. Its upper surface is testaceous or reddish-testaceous, the marginal part of the elytra more or less conspicuously inclining to a distinctly yellowish or red colour. The base of the head is broadly black (the black colour usually reaching forward to the level of the middle of the eyes) and the disc of the prothorax bears a transverse series of irregular but sharply defined black blotches (usually more or less confluent). The undersurface is black, with the prosternum in some examples testaceous, and the legs are testaceous (in some examples more or less marked with black). The antennæ are testaceous (becoming blackish from about the middle in most examples). The sculpture in all parts closely resembles that of *P. Cloelia*. Living specimens are obscurely golden, chiefly around the scutellum.

This is an extremely variable species, the variation usually taking the form of increase in dark colouring,—so that it is difficult to find two specimens absolutely alike. In some the elytra are dark brown, with the margin widely red; in some the elytra light or dark piceous, with the margins more or less widely testaceous; till at last we reach the form described by Chapuis, in which the upper surface may be described as black, with the

prothorax and elytra narrowly edged with testaceous. The elytra of some examples are uneven through some of the interstices being irregularly costate, but I take them to be merely abnormally developed specimens. The males are more depressed than the females. Long. $4-4\frac{1}{2}$, lat. $3\frac{1}{2}-3\frac{3}{5}$ lines.

Victoria and Tasmania.

P. LÆSA, Germ. (*conferta*, Chp.).

This species is named *chlorotica*, Oliv., in the Chapuis collection, but *chlorotica* (which I have already dealt with) was evidently described from a much smaller species. Dr. Chapuis places *læsa* among the species he had been unable to identify. Germar's description of *læsa* fits the present insect very well, and moreover I have before me examples taken in the exact locality whence Germar's specimens came.

It is a species of wide subcircular form and moderate convexity (a trifle less convex than *P. variicollis*), and entirely of testaceous or pale ferruginous colour except that in some examples the antennæ are somewhat infuscate towards the apex, and that the prothorax is generally faintly blotched with fuscous, while the head and prothorax are not infrequently blotched with whitish colouring and (rarely) the elytra bear a few small fuscous spots; there is also a tendency towards whitish colouring along the base of the elytra. The surface is only moderately nitid. The head is flat, with fine close puncturation tending to become longitudinally confluent. The prothorax is a little less than three times as wide as long, moderately narrowed in front, with the front margin only feebly bisinuate, its disc rather coarsely rugulose and closely but irregularly punctured (its lateral portion evidently more coarsely and closely, with a large feeble depression), its sides gently arched, the front angles prominent but scarcely sharp, the hind angles quite rounded off. The scutellum is nitid and not or scarcely punctured. The elytra are non-striate (scarcely striate in the ♀) and bear 10 extremely unsymmetrical rows (the 5th, 6th and 7th more symmetrical than the rest) of moderately fine round punctures, the interstices of the striæ flat and finely somewhat

closely punctulate; the lateral portion of the elytra is impressed with close and not particularly coarse puncturation, the interstices of these punctures not or scarcely rugulose. The elytra are devoid of lateral unevenness. The antennæ are slender and filiform, their 3rd joint very evidently longer than the 4th joint. The males are a little less convex than the females. Long. $3\frac{1}{2}$ -4, lat. $2\frac{4}{5}$ -3 lines.

The principal variation that I observe in this species is in the presence of more or less fuscous colouring in the punctures of the lateral portion of the elytra.

I suspect that *P. amica*, Newm., is a variety of this species, but the description is altogether insufficient for identification.

When alive this species bears a good deal of ill-defined green or golden metallic colouring, consisting of spots and lines on the head and prothorax, and suffused over the elytra but generally much brighter about the base than on the hinder part.

Specimens taken by the Horn Expedition in Central Australia have the head less flattened and the prothorax somewhat less closely punctulate, with its front margin more strongly bisinuate; they may represent a distinct very closely allied species.

I have a specimen named *conferta* by Dr. Chapuis which I cannot separate from the present insect.

N.S. Wales, Victoria, S. Australia, and Tasmania.

P. MINERVA, sp. nov.

Latissime ovalis; convexa; testacea (exemplo typico sicco), elytris pone medium prope marginem disci externum macula majori nigra ornatis; capite crebre subtilius punctulato; antennis elongatis gracilibus; prothorace quam longiori ut $2\frac{1}{3}$ ad 1 latiori, antice minus angustato, in disco dupliciter (subtiliter et subfortiter) minus crebre nullo modo rugulose (ad latera grosse subrugulose) punctulato, angulis anticis fortiter productis sat acutis posticis rotundatis, lateribus minus arcuatis; scutello lævi; elytris æqualibus, antice haud (postice leviter) striatis, puncturis minus subtilibus (fere ut *P. læsa*, Germ.) (his 10-seriatim nullo modo symmetrice dis-

positis) ornatis, interstitiis subtiliter nec crebre punctulatis; parte laterali puncturis (quam serierum paullo majoribus) sat crebre sat æqualiter nec rugulose impressa. Long. $2\frac{1}{2}$, lat. $2\frac{1}{10}$ lines.

An isolated species standing alone in this subgroup in having well-defined black markings on the elytra. Structurally it is near *P. læsa*, Germ., but is much smaller and more nitid, with prothoracic puncturation non-rugulose, interstitial puncturation of elytra much less close, &c.

Australia; I do not know its exact habitat.

P. BIMACULATA, Oliv.

This species has much superficial resemblance to the ordinary form of *P. agricola*, Chp., and as both of them are variable in colouring it is difficult to specify any sharply defined colour difference. In the present species, however, judging from the somewhat numerous examples before me, the dark marks on the prothorax are only two (a vitta abbreviated at each end, on either side of the middle), while in *agricola* the dark marks are almost invariably more numerous often occupying almost the whole surface of the segment. The under surface and legs moreover in the present species are rarely so dark in colour as in *agricola*. *P. bimaculata*, however, is a manifestly less convex species than *P. agricola*; with elytra less nitid, notably less distinctly striate, and having the seriate punctures much more symmetrical [*i.e.*, running in single file, the regularity of the lines not (or scarcely anywhere) disturbed by two or three of the punctures being placed in a *transverse* row]. Long. $4-4\frac{1}{2}$ lines.

Tasmania.

P. IRRISA, Newm.

The Victorian *Paropsis* which I have little doubt is the subject of this name is extremely like *P. variicollis*, Chp.; indeed, I know not how to distinguish it from that species except by the sculpture of the elytra, which are distinctly less strongly striate and especially have their seriate punctures running in single file without (or

almost without) any interruption of their symmetry through some punctures being placed out of line with the others. The elytra of this species are much more strongly striate than those of the following species (*P. obovata*).

Victoria.

P. OBOVATA, Chp. (*vulgaris*, Chp.).

Of this species I have a pair named by Dr. Chapuis. Presuming them to be really conspecific, the insect is distinguished (among the species having the elytral series symmetric, the elytra with a shallow depression behind the humeral callus, and the prothorax devoid of black markings) by the following characters in combination, viz., antennæ with the joints of their apical half cylindrical or nearly so, female with the interstices of the elytral series more or less convex, elytra of male not quite non-striate. In the examples of *obovata* before me the elytra are of a pale testaceous colour faintly tessellated with small whitish spots, and I think they had (when alive) some obscure golden colouring about the base of the elytra. I have also an example in my collection (from Queensland) which seems to be *P. obovata*. The colour of dried specimens is no doubt variable. I have examples named *vulgaris* by Dr. Chapuis which I am unable to separate from those named *obovata* by the same learned author, nor do I find any definite distinction of characters in the descriptions under the two names.

P. BASALIS, Chp.

With this insect commences a series of species distinguished by the following characters:—Elytra devoid of well-defined metallic pattern, having their seriate punctures extremely symmetrical, devoid of systematic lateral inequalities, and with the punctures of the series fine and close (in the 9th and 10th series three punctures in a length not or scarcely greater than the width of the interstice between those series). The lateral confusedly punctured part of the elytra is absolutely non-rugulose, and its sculpture (disregarding the fine puncturation exactly like that of the interstices of the series, which is continued evenly over its

surface) consists of isolated punctures of very equal size very evenly distributed and not (or but little) larger than the punctures of the series. The surface of the disc of the prothorax is invariably non-rugulose and the puncturation of the same close and fine (or, at any rate, by no means coarse), though in some specimens more or less asperate. Most of the species with the above mentioned characters are decidedly more nitid than those that follow them.

P. basalis I have identified from Dr. Chapuis' description, where mention is made of the remarkable colouration of the elytra (consisting in the elytral series becoming abruptly black at a short distance from the base) to which I have seen no approach in any other species of this subgroup. With the exception just mentioned, the whole insect is of testaceous-brown colour. The antennæ are long and slender, the size notably larger (long. $5.5\frac{3}{4}$ lines) than that of any of its immediate allies. Dr. Chapuis gives Sydney as the locality where this species is found, but all that I have seen were taken in Western Australia. The punctures of the elytra (both seriate and interstitial) are rather strong as compared with those of most allied species, but those of the series are quite as closely packed as in the following species. The striation of the elytra also is better marked than in most of the allied species, and in the female the interstices are distinctly convex.

P. AUREA, sp.nov.

Late (♂) vel minus late (♀) ovalis; modice (♂ quam ♀ minus fortiter) convexa; nitida; testacea, sutura antice sat late infuscata vel nigricanti (nonnullorum exemplorum elytris prothoraceque ad latera pallidioribus, antennis apicem versus infuscatis, corpore subtus pedibusque plus minusve nigricantibus, capite postice nigro); exemplorum vivorum elytris in disco splendide aureis; antennis sat gracilibus sat elongatis; capite subtiliter sat crebre punctulato; prothorace quam longiori ut $2\frac{1}{2}$ ad 1 latiori, antice modice angustato et fortiter bisinuato, crebre subaspere nullo modo grosse (latera versus subgrosse) punctulato, angulis anticis obtusis posticis nullis,

lateribus modice arcuatis; scutello vix manifeste punctulato; elytris æqualibus, haud striatis, puncturis seriatis rotundis parvis valde regulariter dispositis, in seriebus confertim impressis (sicut puncturæ circiter 3 longitudinem interstitii latitudini æqualem occupant), interstitiis planis puncturis crebris minus subtilibus impressis, parte laterali nullo modo rugulosa ut interstitia punctulata et puncturis majoribus (his quam serierum puncturæ paullo minus subtilibus) confuse nec acervatim impressa. Long. $3\frac{1}{2}$ - $4\frac{1}{2}$ lines.

This and the following species are closely allied *inter se*, but are distinguishable from *P. Simsoni* and its allies by their very evidently more nitid surface. When alive, the present insect is quite unmistakable on account of the brilliant golden-yellow gloss of its elytra; when dried, however, it is not very easily distinguishable, but is distinctly of narrower form than *hectica*, and specimens in good condition (*i.e.*, neither immature nor unduly affected by the action of spirit) have the suture—at least in its front half—infusate (in some examples quite widely black). The 10th elytral series in this species is usually more darkly coloured than the rest, but this is also the case in many specimens of *hectica*. There are few species of *Paropsis* more beautiful than this is when alive.

Tasmania; Hobart.

P. HECTICA, Boisd.

This species I believe to be an extremely variable one, and if I am right in grouping together the various forms that I include under the name it is easily distinguishable from all other species except the preceding (*P. aurea*). It is decidedly more nitid than any of its following allies and has the seriate punctures of its elytra extremely symmetrical and very closely placed (*inter se*) in the series, the short subsutural and the 10th series being in many examples conspicuously blackish in contrast to the other series. The specimens from a given locality usually resemble each other more closely than they resemble specimens from distant localities, so that it is possible to distinguish in the species

certain types which appear to appertain to local races; these "local races" may perhaps in reality be valid species. Living specimens have the disc of the elytra suffused with metallic colouring of a more or less brilliant green tint and present in a high degree the pseudo-sulcate appearance referred to above in the general remarks on this subgroup. Dried specimens are of uniform brown or testaceous colour on the upper surface, except some dark colouring present (at any rate on most specimens) on the back of the head but only visible when the head is considerably extruded, and some dark colouring always (as far as my observations go) on some at least of the elytral series, which latter dark colouring is in rare examples vaguely extended to the interstices. The following notes indicate the special characteristics of some local forms, as I believe them to be.

The type (assuming Dr. Chapuis' identification to be correct, I have an example named by that learned author) occurs in N.S. Wales, but in my experience is rare. Its special characters consist in the under surface, legs and antennæ being entirely of pale brown colour, the dark colouring of the elytral series limited to the 1st and 10th series, the convexity of form in the ♂ at its maximum, and the closeness of puncturation on the prothorax and in the elytral series at its minimum.

Another race occurring in N.S. Wales has the under surface, the femora and the outer joints of the antennæ more or less black or infusate, other elytral series (besides the 1st and 10th) tending to be of dark colour, the form (especially of the male) tending to be less convex than in the type, the puncturation of the prothorax evidently closer than in the type and slightly asperate, and the punctures of the elytral series (especially in the male) somewhat more closely disposed.

In Victoria (as far as I have observed only in the mountainous regions) occurs a form coloured like the last mentioned except that the dark colouring of the elytral series tends to be faintly suffused over the interstices. In this race the convexity of form is at its minimum (especially in the male) and the closeness and asperity of the prothoracic puncturation is at its maximum.

In S. Australian specimens the colouring is as in the type, except that all the elytral series are of dark colour (rarely extending to the interstices) and the humeral calli are of dark colour also; the convexity of form is as in the 2nd of the races described above, and the prothoracic puncturation is as in the Victorian race.

It should be noted that the distinction I have attributed to each of these races cannot be said to be in all respects invariable, rare examples from the Victorian mountains (*e.g.*) showing *only very feebly* the characters that distinguish the Victorian Alpine race from the 2nd of the races enumerated.

Dr. Chapuis cites Tasmania as one of the localities of *P. hectica* (and curiously enough omits N.S. Wales,—Boisduval's locality). I have before me a specimen from Tasmania named "*hectica*" by Dr. Chapuis, but I am of opinion that it is *aurea*; though unfortunately it is so extremely old an example that I have been unable to bring out its natural colours in even the slightest degree, and its form being considerably distorted the determination of its species is impracticable. I have, however, not seen *hectica* among the numerous specimens of *Paropsis* that I have collected in Tasmania, or received from Tasmanian collectors.

P. SIMSONI, sp.nov.

Late (♂) vel minus late (♀) ovalis; modice convexa; modice nitida; tota testacea; exemplorum vivorum elytris in disco roseo-vel aureo-roseo-nitentibus; antennis sat gracilibus sat elongatis; capite crebre aspere nec ullo modo grosse punctulato; prothorace fere ut *P. aureæ* sed sat ruguloso; elytris ut *P. aureæ* sed interstitiis multo magis fortiter punctulatis, in his puncturis nonnullis quam serierum puncturæ vix subtilioribus, sicut series minus perspicuæ sunt. Long. $2\frac{3}{4}$ - $3\frac{1}{2}$ lines.

This species differs from *aurea* by its constantly smaller size, its different colouring (in dried examples the whole insect pale testaceous, in living ones the disc of the elytra suffused with a rosy or golden-rosy metallic gloss), its somewhat less nitid surface, its rugulose prothorax, and especially the very different sculpture

of its elytral interstices, which are closely impressed with confused punctures, many of which are scarcely smaller than the seriate punctures, so that the latter do not appear very conspicuous to a casual glance. This last named character distinguishes the present insect readily from all its near allies.

With this insect commences a short series of species agreeing with the preceding two in most of their characters, but differing in their less nitid upper surface.

Tasmania.

P. RAUCICOLLIS, sp. nov.

Late (δ) vel minus late (φ) ovalis; convexa; minus nitida; tota testacea (exemplorum vivorum elytris in disco plus minusve viridi-nitentibus); antennis sat gracilibus minus elongatis; capite crebre rugulose punctulato; prothorace quam longiori ut $2\frac{1}{2}$ ad 1 latiori, antice modice angustato, grosse rugulose (ad latera etiam magis grosse) punctulato, ad latera late oblique leviter impresso, angulis anticis sat acutis posticis nullis, lateribus sat arcuatis; scutello punctulato; elytris æqualibus, haud vel vix striatis, puncturis seriatis rotundis parvis valde regulariter dispositis (in seriebus confertim dispositis sicut puncturæ 3 longitudinem interstitii latitudini æqualem occupant), interstitiis planis confertim subaspere minus subtiliter (sed quam series multo subtilius) punctulatis, parte laterali nullo modo rugulosa ut interstitia punctulata et puncturis majoribus (his quam serierum puncturæ paullo minus subtilibus) confuse nec acervatim impressa. Long. 3-4, lat. $2\frac{2}{5}$ -3 lines.

Rather closely allied to the preceding (*P. Simsoni*) but differing from it *inter alia* by its still more rugulose prothorax and by the sculpture of its elytra, there being considerable difference in size between the seriate and interstitial punctures, in consequence of which the elytral series are very much more conspicuous in the present insect than in *Simsoni*.

S. Australia; near Adelaide.

P. PALLIDA, Chp. (? Oliv.)

I regard it as very doubtful whether this is really *pallida*, Oliv., but as I have before me an example so named by Dr. Chapuis it seems convenient to accept the determination. The present insect and the next (*P. inconstans*) are evidently allied to the preceding two (*raucicollis* and *Simsoni*) but are at once distinguished from them by the non-rugulose surface of the disc of their prothorax, and also from *Simsoni* by the puncturation of their elytral interstices being notably finer than that of the series. *P. pallida*, Chp., is very close to *inconstans*, but is certainly in my opinion distinct from it inasmuch as its prothorax is of perfectly even convexity from one lateral margin to the other, while on the prothorax of *inconstans* there is an evident wide, shallow, oblique impression on either side marking the difference between the disc and the lateral portion, the latter, moreover, even independently of the said impression, being slightly flattened as compared with the strong convexity of the disc. The specimen from Dr. Chapuis' collection ticketed '*pallida*, Oliv.,' has no locality label attached to it; the other specimens that I have seen are from S.W. Australia.

P. INCONSTANS, Chp., MS.

Late (♂) vel minus late (♀) ovalis; convexa; minus nitida; tota testacea (exemplorum vivorum elytris in disco viridi-nitentibus); antennis sat gracilibus minus elongatis; capite crebre subtiliter vix subaspere punctulato; prothorace quam longiori ut $2\frac{1}{2}$ ad 1 latiori, antice sat angustato, subtiliter sat crebre nullo modo rugulose (sed ad latera grosse) punctulato, ad latera late oblique leviter impresso, angulis anticis sat acutis posticis nullis, lateribus arcuatis; scutello leviter sparsim punctulato; elytris æqualibus, haud (vel valde subtiliter) striatis, puncturis seriatis rotundis parvis valde regulariter dispositis (in seriebus confertim dispositis sicut puncturæ 3 longitudinem interstitii latitudini æqualem occupant), interstitiis planis confertim haud vel vix subaspere subtilius (sed quam series multo magis subtiliter) punctulatis, parte laterali

nullo modo rugulosa ut interstitia punctulata et puncturis majoribus (his quam serierum puncturæ paullo minus subtilibus) confuse nec acervatim impressa. Long. $3-4\frac{1}{4}$, lat. $2\frac{3}{5}-3\frac{1}{2}$ lines.

I am doubtful whether I may not include several closely allied species under this name, but I do not think the point could be decided without breeding some extensive series. There is a considerable difference in size and in the distinctness of the traces of elytral striæ among the specimens before me, the latter, however, being very possibly due to the action of spirits. I have an example from Dr. Chapuis ticketed '*inconstans*,' but cannot find that he has published any description of it. It is a small ♀ specimen (long. 3 lines) with non-striate elytra.

This species has been differentiated from *pallida* under the heading of that species. From the other allied species preceding its non-rugulose prothorax, combined with a surface only slightly nitid and interstitial elytral puncturation notably finer than the seriate, readily distinguishes it; and from the following species (of those not having a defined metallic pattern) its elytral series both fine and very regular furnish a satisfactory distinction.

South and Western Australia and N.S. Wales.

P. DECOLORATA, Chp.

Under this name again it is quite possible that I am including a batch of very closely allied species. It is fairly easy to recognise among its congeners of this subgroup by the lateral part of its elytra being sculptured after the manner of the preceding aggregate (*P. aurea*, *hectica*,—and especially *inconstans*,—&c.), while its elytral series are notably less symmetrical (some of them more or less sinuous or jagged, the 10th in its front part evidently out of order,—yet very much more symmetrical, it must be remembered, than in *variicollis* and its allies) and not particularly fine or closely placed. Although the seriate punctures are notably larger and sparser than in preceding allies (*e.g.*, *inconstans*) they vary in size sufficiently to suggest the possibility already mentioned that I am mixing more than one species under the name. The

elytra are rather distinctly striate and their striæ are not of the fine scratch-like character of those of *P. inconstans*, &c. The colour is extremely variable. In living specimens the head and prothorax usually bear some golden markings and the disc of the elytra is tessellated with a great number of small square blotches of silvery or somewhat golden metallic colouring (these were the markings in life of a specimen sent to me from Dr. Chapuis' collection), but in some examples (possibly not truly conspecific) the tessellation is almost wanting or is disposed to a greenish tone, or is more or less suffused over the whole disc, but I think there is always some indication of metallic tessellation at any rate near the external margin of the disc. In dried specimens the colour of the upper surface varies from pale to red-testaceous, in some examples overspread with livid brown which occasionally is not uniform but is concentrated into two faintly defined blotches—one before, the other behind, the middle. The prothorax is frequently variegated with more or less defined markings which tend to the form of the letter U (with its two extremities dilated externally) occupying the disc with or without some blotches near the lateral margin. The example from the Chapuis collection has this marking feebly defined but quite distinct. The underside and legs vary from entirely testaceous to nearly entirely black. This variation of the underside occurs in examples that are certainly conspecific. In the Chapuis example the underside is almost entirely testaceous, the legs entirely so. The antennæ are moderately long and slender, resembling those of *P. inconstans*; the prothorax does not differ much from that of *P. inconstans* (apart from the markings already mentioned) except in the sculpture of its disc tending towards more or less rugulosity, with puncturation of less even appearance owing to the individual punctures being of very unequal size *inter se*. In my specimens from the Chapuis collection the prothorax is *decidedly* rugulose with the punctures of the disc at a maximum of inequality.

I have before me a specimen ticketed '*maculicollis*' by Dr. Chapuis which is decidedly identical with that ticketed '*decolorata*' by the same learned author. It has the dark markings of the

prothorax exceptionally pronounced, a dark marking on the middle of the head (of which there are distinct traces in other specimens before me), and the underside very dark; I can state positively that none of these characters are specific or even sexual,—from observation of specimens taken under circumstances that allowed no doubt of specific identity. I do not, however, regard it as the genuine *maculicollis*, Clk., which I have not seen, but have little doubt is a good species. The size of *P. decolorata* is long. 3-4 lines, and it is found all over Australia and Tasmania.

P. CAPTIOSA, Clk.

Of the Rev. H. Clark's descriptions of *Paropsis* only three seem to be founded on species belonging to the portion not having a distinct elytral pattern of this subgroup,—viz., *amœna*, *captiosa*, and *maculicollis*,—all from Western Australia. *P. maculicollis* is a small insect (long. $2\frac{1}{2}$ lines) which I am satisfied that I have not seen, and which (as noted above) Dr. Chapuis identified (wrongly I doubt not) with a much larger species that I cannot separate, otherwise than as a colour var., from *decolorata*, Chp. I cannot find any definite difference between the descriptions of *amœna* and *captiosa*, but have before me examples from W. Australia (one of them from Champion Bay, the habitat cited by Clark) which seem to be certainly *captiosa*, whether that species is or is not distinct from *amœna*. Other specimens before me, which I cannot separate by any definite characters from the W. Australian ones, are from S. Australia and N.S. Wales. Fresh specimens have some feeble metallic colours vaguely diffused on the prothorax and the base of the elytra. Dried specimens are testaceous with some rosy or brown variegation, the prothorax usually brownish-yellow with some more or less distinct paler vittæ, the antennæ becoming infusate or even piceous towards the apex. I distinguish the species among its immediate allies (*i.e.*, those of the subgroup not having a sharply defined metallic pattern, nor systematic lateral inequalities on the elytra, nor the elytral series of punctures either unsymmetrical or very close and fine) by the following characters, viz., lateral

sculpture of elytra not particularly coarse or rugulose, disc of prothorax smoothly, not very closely, and somewhat finely punctured. *P. captiosa* and *amæna* are species that Dr. Chapuis mentioned as unknown to him.

P. FASTIDIOSA, Chp.

I have a specimen of this insect named by Dr. Chapuis. It is distinguishable among its immediate allies by the extreme coarseness of the lateral sculpture of its elytra, the 9th and 10th series consisting of large quadrate punctures separated (puncture from puncture in their series) by narrow elevated ribs, some of which are continuous across the interstice between the series and from a certain point of view appear as continuous wrinkles running transversely from the external edge of the 10th series to (or even beyond) the 8th series. The insect is entirely testaceous or reddish-testaceous in colour except the antennæ which (except the basal three or four joints) are black. The antennæ are not very elongate and are very stout. The puncturation of the prothorax is double, consisting of coarse and considerably finer punctures intermingled, the former of somewhat variable closeness on the disc and becoming extremely coarse near the margins. The confused puncturation of the lateral part of the elytra is very coarse and rugulose, that of the interstices of the series very well defined and comparatively coarse, but not very close. The size is, long. $3\frac{1}{2}$ - $3\frac{3}{4}$ lines. The species is widely distributed. Living specimens show very little metallic colouring, usually a faint golden tone about the base of the elytra.

P. FLAVEOLA, Chp. (?).

Of this species I have not seen an example named by Chapuis, and therefore am not certain in my identification. I have before me, however, two specimens from N. Queensland (the locality cited by Chapuis) which agree with the description (such as it is) of *flaveola*. The description mentions only two characters that are of any real value, viz., "puncturation of prothorax fine and very

sparse" and "elytral seriate punctures remote." With the former of those characters the examples before me agree well. The latter of the two characters is ambiguous, as the phrase Chapuis uses might suggest that his species belonged to subgroup ii. of this group (containing *stictica*, Marsh., and its allies), but as the description of *flaveola* occurs in Chapuis' memoir several pages away from the descriptions of *stictica*, *inspersa*, &c., the phrase probably means merely that the punctures of the elytral series are less close to each other than in the species among which *flaveola* occurs, which is the case in the specimens before me.

The present species is much like *captiosa*, Clk., in general appearance and is similarly coloured except in the antennæ (the base excepted) being distinctly *black*. It differs from *captiosa* by its much stouter antennæ, its more sparsely punctured prothorax, the coarser and especially less even sculpture of the lateral part of its elytra, and the notably less closely placed punctures of the elytral series. It appears to have had, when fresh, some large ill-defined feebly metallic blotches of a golden-rosy tone on its elytra.

P. RUFESCENS, Chp. (?).

This species is one of which I do not possess any specimens named by Chapuis, and therefore I cannot be certain that my identification is correct. The specimens which I group together under this name may probably represent more than one species, a doubt which can only be solved, probably, by breeding an extensive series and studying the insects in their larval and pupal stages. Among the feebly metallic *Paropses* (of this subgroup) having the elytral series of punctures symmetrical or nearly so, the elytra devoid of systematic lateral inequalities, the elytral series not of very fine and perfectly symmetrical type (as they are in the *hectica* aggregate) and the lateral puncturation of the elytra not of the evenly distributed non-rugulose type (which they are in the *hectica* aggregate and also in *decolorata* and *captiosa*), this species is distinguished from *fastidiosa* by, *inter alia*, the 9th and 10th elytral series not being subconfluent through the coarseness of their punctures (which moreover are not or scarcely of quadrate

form), and from *flavcola* by the comparative closeness of the punctures in its elytral series as well as by the less robustness of its antennæ. It is an insect of moderate size (long. 3-4 lines), of short subglobular *Coccinella*-like form, and entirely testaceous or rufo-testaceous in colour saving the antennæ, which (except near the base) are usually infusate or even blackish. Living specimens usually have some ill-defined golden blotches on the head and prothorax, and the elytra more or less distinctly tessellated with feeble golden or silvery colouring. I have numerous examples before me from S. Australia, Victoria, and N S. Wales.

P. VITTATA, sp.nov.

Late ovalis, fere semicircularis; modice convexa; testacea, antennis apicem versus infuscatis, capite rufescenti postice nigro, prothorace medio indeterminate obscuro, elytris vittis latis binis (altera subsuturali ante medium subinterrupta, altera submarginali antice abbreviata) ante apicem conjunctis aureis vel viridibus (aureis inter vittas piceis) et macula humerali concolori ornatis (exemplorum siccatorum coloribus fere obsoletis capite et prothorace medio rufescentibus, elytris indeterminate obscure umbratis, capite postice nigro, antennis apicem versus infuscatis, ceteris partibus testaceis vel viriditesticis); antennis elongatis sat gracilibus; capite subfortiter crebrius subrugulose punctulato; prothorace quam longiori triplo latiori, antice fortiter angustato, fere ut caput (sed ad latera multo magis grosse) punctulato, latera versus late sat fortiter impresso, angulis anticis acutis posticis nullis, lateribus arcuatis; scutello sublævi; elytris leviter striatis, puncturis rotundis minus parvis sat symmetricis sat crebre in seriebus 10 positis (fere ut *P. decolorate*, Chp., sed serie 10^a antice symmetrica), interstitiis minus subtiliter minus crebre punctulatis (his maris planis feminae leviter convexis), parte laterali haud rugulosa ut interstitia punctulata et puncturis majoribus (his quam serierum puncturae manifeste minus subtilibus et sat æqualiter dispositis) confuse impressa. Long. 4-4½, lat. 3⅔-3¾ lines.

This species is very easily recognisable when alive by the metallic pattern of its elytra, which consists of a well defined wide subsutural vitta (more or less completely interrupted in front of the middle of the length of the elytra) and a similar vitta placed just within the lateral margin of the discal portion of the elytra (this vitta abbreviated in front), the two of a metallic golden or green colour and confluent at the apex of the discal part of the elytra. There is also a small metallic patch on the shoulder. The parts (of the discal portion of the elytra) that are not metallic are of a piceous tone; the marginal portion is testaceous.

Dried specimens may be at once distinguished from nearly all other species of the subgroup by the head being black at its base, the black colour extending forward far enough to reach beyond the level of the back of the eyes. The head is similarly coloured in the species that I have called *bimaculata*, Oliv., but the latter is not at all closely allied to the present insect, being of a much less wide form, notably less strongly convex, with the punctures of the elytral series less symmetrical and notably finer, &c., &c. Apart from colour, *P. vitatta* is closely allied to *P. decolorata*, Chp., from which, however, it differs by its evidently wider form, metallic elytral pattern (in the living specimen), extensively black base of head, and (in dried examples) generally darker tone of colour.

Victoria and N.S. Wales; on the Australian Alps.

P. ANNULARIS, sp. nov.

Late ovalis; modice convexa; testacea, capite postice macula mediana nigra ornato, elytris maculis 5 discoidalibus et vitta (hac ter dilatata ad disci marginem lateralem sita) aureis ornatis (e maculis discoidalibus 2 basalibus, 3 ita positis ut cum alterius elytri maculis figuram nonnihil circulum simultantem formant); antennis elongatis sat gracilibus; capite crebre subtilius subrugulose punctulato; prothorace quam longiori ut $2\frac{1}{2}$ ad 1 latiori, sparsius subtilius (ad latera grosse rugulose) punctulato, angulis anticis sat acutis posticis nullis,

lateribus arcuatis; elytris vix striatis, puncturis parvis sat symmetrice sat crebre in seriebus 10 positis, interstitiis sat planis crebre subtiliter punctulatis, parte laterali ut *P. gloriosæ*; exemplis siccis fere totis testaceis. Long. 3, lat. $2\frac{2}{5}$ lines.

The metallic markings on the disc of each elytron are—two basal spots (the inner one not quite touching the base, and smaller than the corresponding spot in *gloriosa* and *nobilitata*); an elongate spot placed near the suture (slightly in front of the middle of the elytron) and directed from the suture outward and slightly *forward* (the corresponding blotch in *gloriosa* and *nobilitata* is much larger and is directed outward and *hindward*); a small elongate spot placed longitudinally on the 5th interstice considerably behind the middle of its length; a still smaller spot placed about on the 3rd interstice near its apex; and a vitta margining the disc externally and somewhat angularly dilated in front of, at, and behind, the middle of its length. Dried specimens are extremely like *nobilitata* and *gloriosa*, but are distinguishable by the presence of a basal black spot on the head (reaching forward about to the level of the hind margin of the eyes). I have seen a good many specimens of this insect and do not find its markings variable. The discal markings of the elytra (exclusive of the basal ones) are so placed that they would all lie on the circumference of a circle having its centre on the suture about half-way between the middle and the apex.

N.S. Wales; Queanbeyan (Mr. Lea).

P. GLORIOSA, sp. nov.

Late ovalis; modice convexa; testacea, elytrorum disco abdomineque rufescentibus, illis maculis nonnullis splendide aureo-vel viridi-metallicis ornatis [sc. macula magna basali prope scutellum altera parva basali prope humerum sitis, fascia lata obliqua vix pone medium sita (hac extrorsum et retrorsum directa, nec suturam nec disci marginem lateralem attingenti), fascia subapicali (hac fasciæ submedianæ simili sed angustiori), et maculis 2 in disci margine laterali sitis],

antennis apicem versus plus minusve infuscatis; antennis elongatis sat gracilibus; capite crebre subtiliter nec rugulose punctulato; prothorace quam longiori fere ut $2\frac{1}{2}$ ad 1 latiori, fere ut caput sed ad latera grosse rugulose punctulato, angulis anticis acutis posticis nullis, lateribus arcuatis; elytris (δ haud, ♀ leviter) striatis, puncturis parvis sat symmetrice sat crebre in seriebus 10 positis, interstitiis planis vel vix convexis crebre subtiliter punctulatis, parte laterali haud rugulosa puncturis quam serierum puncturae sat majoribus crebre aequaliter impressa; exemplis siccis fere totis testaceis. Long. $3\frac{1}{2}$ - $3\frac{3}{4}$, lat. $2\frac{1}{2}$ -3 lines.

The metallic markings on the disc of each elytron of living specimens are—two basal spots, a wide fascia-like blotch running obliquely hindward and outward (abbreviated at both ends and placed immediately behind the middle of the elytron), a similar but narrower blotch placed near the apex and two spots on the lateral margin (of the disc). Dried specimens are not very easy to distinguish from *P. nobilitata*, Er., but they are of somewhat wider form with the testaceous colour of their elytra more or less clouded with infuscation.

Victoria; mountainous districts.

P. NOBILITATA, Er.

The metallic markings of this species (in life) are of green or golden colour and are placed as follows:—a blotch on each side of the prothorax; and on each elytron a large basal blotch close to the scutellum and a small one near the humeral angle, a vitta (abbreviated in front and having its inner edge sinuous) on the disc close to its external margin from close to the hinder end of which a short branch is given off obliquely (forward and towards the suture), and on the apex of this branch a blotch bearing a rough resemblance to an axe in shape (the handle of the axe standing on the aforesaid branch and the edge of the axe-head being directed obliquely forward and towards the suture). The non-metallic portions of the disc of the prothorax and elytra are of various shades of red and their margins are testaceous. The

under surface, legs and antennæ are testaceous, more or less tending to red. The above is a description of a living specimen, and as far as my experience goes the markings are scarcely variable (I have not, however, taken the insect in large numbers); it is by no means the case, however, that all the markings described can invariably be brought out by artificial means in all dried examples; very old examples, also any that were not quite mature when killed, and also such as have been previously treated several times for temporarily restoring the colours, are less responsive to treatment than others (as far as my experience extends); but in reasonably fresh and mature specimens I rarely am unable to recall sufficient markings for identification. The species is of moderate size (long. $3-3\frac{1}{2}$ lines) and as yet has been recorded from Tasmania only. Dried examples are entirely testaceous in colour. There can be no reasonable doubt about this being the insect Erichson describes as *nobilitata*. He gives the metallic markings on each elytron as "three rather large spots placed longitudinally near the suture, of which the posterior two are confluent, and a lateral vitta";—the three spots being, no doubt, those which I have indicated as "a large basal blotch close to the scutellum," "a blotch bearing a rough resemblance to an axe in shape," and "a short branch given off from the lateral vitta." The best character that I can find (apart from colours) to distinguish *nobilitata* from its near allies (*e.g.*, *debilis*, Chp., and *decolorata*, Chp.) consists in the lateral portion of its elytra being slightly gibbous close to its line of contact with the discal portion, causing the 10th series of punctures (looked at obliquely from the side) to appear as placed in a distinct stria.

P. DEBILIS, Chp.

I have an example from the Chapuis collection (ticketed with this name) which is evidently a very old one (probably considerably more than 20 years old) on which treatment with benzine brings out distinct though feeble traces of a metallic elytral pattern; and I have also examples taken in Western Australia (Chapuis' locality) by Messrs. Meyrick and Lea that are manifestly

the same species, the metallic pattern of which I have developed very clearly. The metallic pattern is extremely like that of *nobilitata*, but differs in that portion which Erichson describes as the hinder two of the 3 spots placed longitudinally near the suture. In the present species they are represented by a single elongate patch of continuously equal width and very sinuous form (somewhat resembling the shape of a sickle) running parallel with the suture, its hind extremity in contact (close to the apex of the elytra) with the extremity of the lateral vitta. Dried specimens scarcely differ from dried specimens of *nobilitata* except in being evidently more convex and without the stria-like structure (mentioned above) of the 10th elytral series; they also resemble dried specimens of *decolorata*, but are easily distinguished from the latter by the non-rugulose puncturation of their prothorax. It is possible that this species is identical with *purpureoaurca*, Clk., but I cannot quite reconcile the pattern of its elytra with that attributed by its author to the latter species which is said to have two rings of metallic colour on each elytron besides the lateral vitta. As far as I can gather this description was furnished to Mr. Clark by the collector from whom he received the species, and may have been somewhat of an "off-hand" nature. I have seen examples of *debilis*, Chp., from diverse localities in W. Australia, and their markings do not seem to be variable.

SUBGROUP VI.

This subgroup is very easily distinguished by the head in front of the eyes being strongly produced and much narrowed forward. The species known to me are all of small size and of firm texture, non-metallic in colouring (so far as my observations go) and not or but little liable to fade after death. The shape of the head is the only character I can find to separate them from subgroup iv., some of the species of which resemble them closely in size and in colour and markings (*e.g.*, *festiva*, Chp., and *delicatula*, Chp.); indeed I look upon it as a merely artificial arrangement to separate subgroups iv. and vi., but nevertheless one that is of great convenience in monographing so difficult a genus as *Paropsis*. Moreover there

are undeniably gradations in the development of the character on which this present subgroup is founded, for, while the anterior prolongation of the head in *rostralis*, Blackb., is so great as to suggest the idea of even *generic* distinction from *Paropsis*, that prolongation is less strongly marked in the other species. The distinction, however, is not entirely a matter of degree of prolongation of the clypeus, for I find that in all the species I place in this subgroup there is a certain point of view from which the portion of the head in front of a line joining the front margin of the eyes appears to have an outline formed by three straight lines (the front one horizontal, the lateral ones oblique), while from a similar point of view the outline of the corresponding portion of the head in the allied species of subgroup iv. appears as an almost even and continuous curve. I cannot ascertain that more than one species of this subgroup has been described hitherto :—viz., *P. Hamadryas*, Stål, of which *flavivarsis*, Chp., is a variety.

The following tabular arrangement will assist in identifying the species described below :—

- | | |
|---|--------------------|
| A. Clypeus punctured uniformly (or nearly so) with the rest of the head. | |
| B. The puncturation of the prothorax (except the usual coarsely punctured lateral area) uniformly fine. | |
| C. Antennæ moderately long and slender (joints 8-10 much longer than wide) | Hamadryas, Stål. |
| CC. Antennæ stouter and generally shorter (joints 8-10 not, or scarcely, longer than wide). | |
| D. Antennæ not having their dilated portion beginning abruptly at the 7th joint. | |
| E. Eyes quite flat | Dryope, Blackb. |
| EE. Eyes distinctly prominent. | Lucina, Blackb. |
| DD. Dilated portion of the antennæ beginning abruptly at the 7th joint | Pandora, Blackb. |
| BB. The coarse lateral puncturation of the prothorax beginning sparsely near the middle of the disc | Vesta, Blackb. |
| AA. Clypeus scarcely visibly, the rest of the head coarsely, punctured | rostralis, Blackb. |

P. HAMADRYAS, Stål. (var. *flavitarsis*, Chp.).

This is perhaps the most variable species in the genus *Paropsis*, its variation being so great that it is no easy matter to find two similar specimens, and in many examples the two elytra are dissimilar *inter se*. Presuming that I am not confusing more than one species under the name (which I am fairly confident is the case), *P. Hamadryas* is easily recognisable, for the structure of its head refers it unmistakably to the small aggregate that I have called "subgroup vi.," and it is the only species known to me of that aggregate in which the antennæ can rightly be called even moderately elongate and slender. These organs are much like those of *P. subfasciata*, Chp.; directed backward they extend considerably beyond the base of the prothorax; all the joints, especially the apical 5, are notably longer than wide; and there is very little compression or dilatation of the apical portion—such as there is commencing somewhat doubtfully at the 6th or 7th joint and the 6th and 7th joints being scarcely appreciably narrower than any of those that follow them. The head is much flattened, and is closely and rather strongly punctulate (less closely in rare examples) and longitudinally rugate in front. The prothorax is finely and not closely punctulate except at the sides where it is coarsely rugulose; its length is somewhat less than half its width, and it is not much narrowed in front, with sides feebly rounded, front angles somewhat acute, and hind angles (viewed from above) well defined but obtuse. The elytra are non-striate except near the apex where feeble striæ are visible; their 10 series of punctures are close-set and not particularly fine, but are rendered somewhat inconspicuous by the presence on the interstices of numerous punctures (mingled among smaller punctures) not much smaller than those of the series. Some examples are entirely testaceous in colour. The head usually bears a bifid black patch which varies in size up to the extent of invading the whole surface except the labrum. The prothorax varies (so far as I have observed) only by the usual presence of a more or less developed black spot at the middle of the base. The scutellum

is often black. The elytra vary by the usual presence of black markings; beginning with two subbasal short lines and a single median one on each elytron, through a form in which the subbasal lines are 3 and the median 2, and a form in which in addition the suture is (more or less widely) black, and another in which the subbasal and median lines are connected into fasciæ, and another in which a subapical fascia is added, and others in which these various markings increase in size, the black colouring gradually invades the whole elytra except a narrow margin (*flavitaris*, Chp.), and at last does not leave any testaceous colouring at all; in many examples the undersurface and legs are more or less marked with black, and in some the antennæ are blackish near the apex. The species is a small one (long. $1\frac{4}{5}$ - $2\frac{1}{4}$ lines), and I have seen examples from S. Australia, Victoria, N.S. Wales, and Tasmania.

P. DRYOPE, sp. nov.

Late ovalis; minus convexa; modice nitida; testacea, varie nigro-notata (exempli typici capitis ad basin summam macula antrorsum biloba, scutello toto, elytrorum macula communi post-scutellari, in utroque elytro macula basali maculaque subapicali annulari, et in corpore subtus maculis plurimis, nigris), capite rufescenti, antennis apicem versus infuscatis; capite ante oculos elongato, crebrius dupliciter (subtiliter et subfortiter) punctulato; oculis depressis, antennis parum elongatis, articulis 5° - 8° gradatim latioribus, 8° - 10° inter se sat æqualibus quam latioribus parum longioribus; prothorace quam longiori ut $2\frac{1}{2}$ ad 1 latiori, antice valde bisinuato, in disco subtilissime (ad latera grosse crebrius) punctulato, angulis anticis acutis posticis obtusis, lateribus leviter arcuatis; elytris haud striatis, puncturis magnis sat symmetrice (in seriebus 10 dispositis) impressis, interstitiis planis sparsius punctulatis, parte laterali puncturis quam serierum puncturæ vix majoribus crebre sat æqualiter impressa. Long. $1\frac{2}{3}$ -2, lat. $1\frac{1}{10}$ - $1\frac{2}{5}$ lines.

Extreme specimens of this insect are entirely testaceous except 3 or 4 faint fuscous spots on each elytron; others have 5 or 6

small black spots on each elytron; others have similar spots increasing in size and running into each other more or less until they assume the form and disposition described above. The black markings on the head when present vary up to the degree of suffusing nearly the whole surface. The prothorax is usually testaceous, but in some examples there are faint fuscous blotches which in rare specimens become a transverse discal row of distinct black spots. The insect is easily recognisable among its allies by the characters indicated in the tabulation.

S. Australia and Victoria.

P. LUCINA, sp.nov.

Sat late ovalis; minus convexa; sat nitida; supra rufo-testacea, capite (clypeo excepto) scutello et elytrorum notulis nonnullis (sc. macula communi pone scutellum et in utroque elytro macula magna ad callum humeralem anuloque anteapicali) nigris, antennis apicem versus infuscatis, subtus plus minusve picescens; capite ante oculos minus elongato; oculis sat convexis; prothoracis angulis anticis parum acutis; cetera ut *P. Dryope*. Long. $1\frac{1}{2}$ - $1\frac{7}{10}$, lat. 1 - $1\frac{1}{5}$ lines.

Resembles some varieties of *P. Dryope* closely in respect of colours and pattern, and is rather close to that species in most of its structural characters, but differs from it in its very evidently shorter head, much more prominent eyes, and less acute front prothoracic angles. Its head is less produced in front than that of the other species of this subgroup, but is evidently more elongate than in the allied species of subgroup iv. I have seen only two examples (they have identical markings), which were sent to me by Mr. Masters. If they had come from a less accurate collector I should be doubtful as to the correctness of the locality cited for them, as the insect is not in any S. Australian collection known to me.

S. Australia.

P. PANDORA, sp.nov.

Sat late ovalis; minus convexa; modice nitida; testacea, varie piceo-notata (exempli typici in elytrorum disco fascia contorta

mediana suturam haud attingenti antrorsum prope suturam et prope disci marginem lateralem producta, macula elongata in medio pone basin longitudinaliter sita, et fasciis macularibus contortis 2 inter se approximatis ante apicem sitis, piceis), capite rufescenti, antennis apicem versus parum infuscatis; capite ante oculos sat elongato, subfortiter (antice crebre postice sparsim) punctulato; oculis depressis; antennis brevibus, articulis ultimis 5 sat abrupte dilatatis, 7° - 10° fere transversis; prothorace quam longiori ut $2\frac{1}{2}$ ad 1 latiori, in disco sublævi, ad latera grosse punctulato, angulis anticis sat acutis posticis obtusis, lateribus arcuatis; elytris vix manifeste striatis, puncturis sat magnis symmetrice (in seriebus 10 dispositis) impressis, interstitiis sat planis subtiliter punctulatis, parte laterali puncturis quam serierum puncturæ vix majoribus crebre sat æqualiter impressa. Long. $1\frac{1}{3}$, lat. $\frac{4}{5}$ lines.

The head when unduly extruded is seen to be blackish at the base. The markings of the elytra vary from the above description by the faintness or even absence of some or nearly all of them. The species is nearest to *Vesta*, from which, however, it is readily distinguishable (apart from differences of colour and markings) by its notably smaller size, feebler elytral striation, less strongly granulate eyes, and the very much larger area of its prothorax, on which the puncturation is fine—that area being, in fact, about half the entire surface, and extends on either side evenly to the lateral area on which the puncturation is evenly coarse, crowded, and rugulose (as is the case in the others of the subgroup excepting *Vesta*), whereas in *Vesta* there is only a narrow median area without coarse punctures, and outside that area coarse puncturation begins sparsely and becomes gradually closer in approaching the lateral areas.

W. Australia; Swan R. district (Mr. Lea).

P. VESTA, sp.nov.

Late ovalis; minus convexa; sat nitida; supra dilute brunnea, colore obscuriori sat indeterminate suffusa (sc. in prothorace

versus margines anticum et posticum; et in elytris trans basin maculatim, ad medium fasciatim, pone medium et ante apicem transversim maculatim, maculis fasciaque varie connexis); subtus picescens testaceo-maculata, capite rufescenti; hoc ante oculos sat elongato, sparsius sat fortiter punctulato; oculis sat prominulis; antennis sat brevibus, articulis 7° - 11° sat abrupte dilatatis, 7° - 8° que quam latioribus haud (9° - 10° que parum) longioribus; prothorace quam longiori ut $2\frac{1}{2}$ ad 1 latiori, antice modice bisinuato, in media parte angusta sparsim subtiliter (latera versus gradatim magis crebre magis grosse) punctulato, angulis anticis subacutis posticis obtusis, lateribus leviter arcuatis; elytris 10-striatis, striis crebre fortiter punctulatis, interstitiis subconvexis subtiliter minus crebre punctulatis, striis externis 3 fere confluentibus, parte laterali puncturis inaequalibus sat crebre impressa. Long. $1\frac{3}{5}$, lat. $1\frac{1}{10}$ lines.

Of this species I have seen 4 examples, and do not find much variation in their colouring and pattern: the markings in some being, however, of deeper colour than in others and some of the elytral spots which are isolated in some examples being obscurely connected together in other examples. The peculiar sculpture of the prothorax is described under the heading of the preceding species (*P. Pandora*). This insect is remarkably like *P. delicatula*, Chp., (in subgroup iv.), but differs from it by its larger size, elongated head, and prothoracic sculpture,—the prothoracic sculpture of *delicatula* being of the same kind as that of the other species of this subgroup.

Victoria: Black Spur.

P. ROSTRALIS, sp. nov.

Late ovalis; minus convexa; sat nitida; supra testacea, elytris obsolete fusco-irroratis (nonnullorum exemplorum elytris concinne fusco-vel piceo-notatis,—notulis plus minusve 4-fasciatim dispositis, fasciis anticis 2 ad disci marginem lateralem connexis), capite rufescenti, antennis apicem versus infuscatis; subtus testacea vel picescens; capite ante oculos

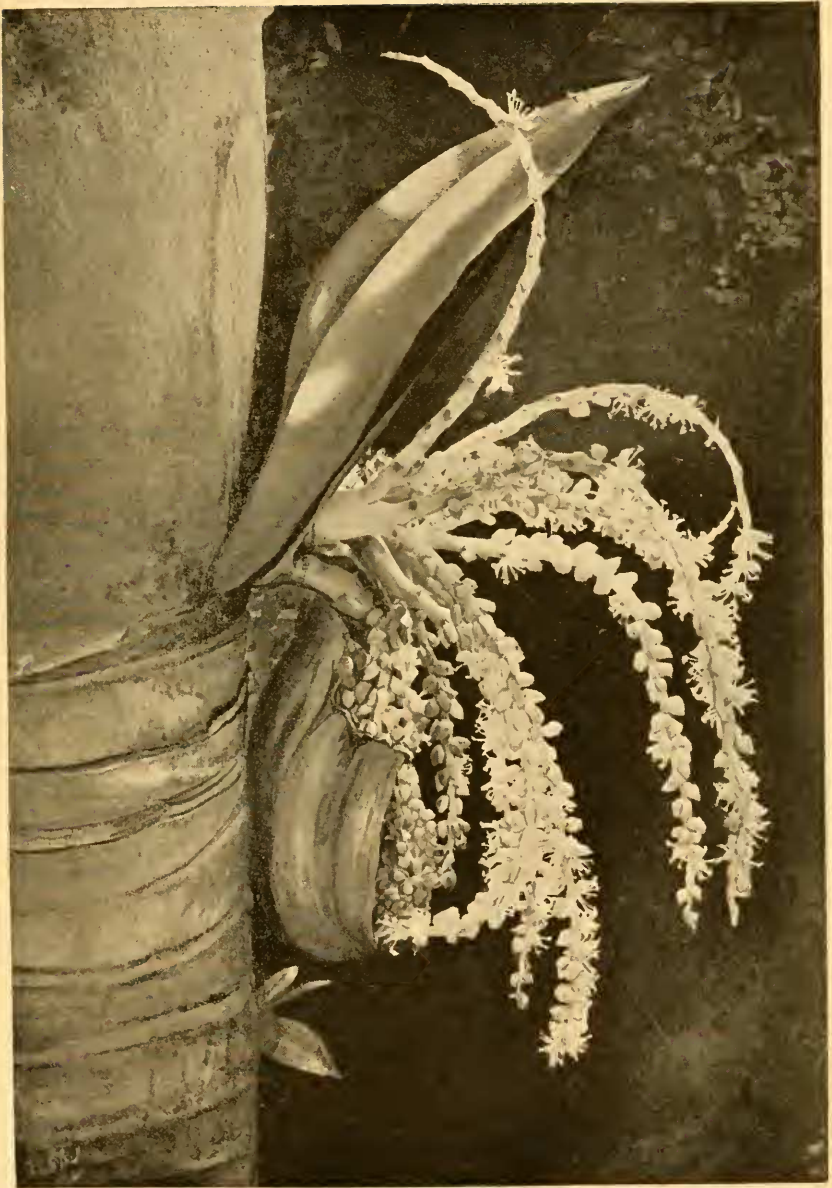
fortiter elongato subrostriformi, parte postica crebre sat grosse (parte ante oculos subtilissime) punctulato; oculis prominulis; antennis brevibus, articulis 7°-11° sat abrupte dilatatis, 7°-10° quam latioribus haud (11° vix) longioribus; prothorace quam longiori circiter triplo latiori, antice modice bisinuato, sparsius subtiliter (ad latera crebrius fortiter) punctulato, angulis anticis subacutis posticis fere rectis, lateribus leviter arcuatis; elytris haud striatis, puncturis sat magnis sat symmetrice (in seriebus 10 dispositis) impressis, parte laterali puncturis quam serierum puncturæ haud majoribus crebre sat æqualiter impressa. Long. $1\frac{1}{3}$, lat. 1 line.

Although the difference between the almost entirely testaceous and the darkest specimens of this insect is very great, yet there are intermediate forms which connect the two by gradations that allow no doubt of their specific identity. The species is quite incapable of confusion with any other owing to its very remarkable head,—coarsely punctulate behind the level of the front of the eyes and strongly produced in front as a nearly impunctulate almost rostriform clypeus.

S. Australia: Eyre's Peninsula.

ADDENDUM.

As this present memoir completes my Revision of Group vi., it seems convenient here to enumerate and remark on the species (attributable to the Group) that for various reasons I have been unable to assign to any subgroup. First, however, it should be noted that two species appearing in Mr. Masters' Catalogue as *Paropses* (and referable to Group vi. if they belonged to the genus at all) are almost certainly not members of the genus,—viz., *P. (Paropsis) pacha* *metallica*, Motsch., and *P. (Notoclea) splendens*, W. S. Macl. The former I take to be the insect since called *Cyclomela nitida* by Dr. Baly, and the latter to be a *Cyclomela* or *Augomela* (probably *A. hypochaleca*, Germ.). Excluding those two there remain 10 names, not yet dealt with in this Revision, of species attributable to Group vi. They are as follows:—



HEDYSCEPE CANTERBURYANA, *F.v.M.*